UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VI
1445 Ross Avenue
Dallas, TX 75202

August 22, 2012

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Ms. Jean A. Mescher, Project Coordinator
Director Environmental Services
McKesson Corporation
One Post Street, 34th Floor
San Francisco, CA 94104

RE: Groundwater Remediation
Arkwood, Inc. Superfund Site

Dear Ms. Mescher,

This letter provides the U.S. Environmental Protection Agency (EPA) direction for the path forward on groundwater remediation activities at the Arkwood, Inc. Superfund Site. From June 2012, comments on the status of groundwater remediation were solicited by EPA Region 6 and received from McKesson Corporation (McKesson), Arkansas Department of Environmental Quality (ADEQ), and EPA Office of Research and Development (ORD). These comments resulted in a joint McKesson-EPA-ADEQ conference call on August 1, 2012. Following this call, two additional responses were received and are enclosed with this letter.

The EPA direction for the path forward on groundwater remediation activities at the Arkwood, Inc. Superfund Site are as follows:

1) Operation of the pilot injection system is to be ceased in the month of September 2012. This cessation of operations is expected prior to any required monitoring in the month of September 2012.

2) Starting from September 2012, required monitoring is to continue on a monthly basis, with additional collection of temperature, pH, and dissolved oxygen measurements. Monitoring will continue until EPA, with ADEQ consultation, deems that such monitoring will no longer be needed.

3) EPA has continued concerns on the fate and transport of Pentachlorophenol (PCP) contaminated groundwater from the site. These concerns (detailed in Enclosure 2) arise from the review of the previous 1991 dye tracing study, as well as the lack of

groundwater monitoring other than at the mouth and weir at New Cricket Spring. McKesson is directed to submit a proposal in September 2012 that details the steps that will be taken to alleviate these concerns.

I look forward to continued efforts to bring site groundwater remediation activities to conclusion. If there are any questions, please feel free to contact me by telephone at 214.665.2755, or via email at moya.ruben@epa.gov.

Sincerely,

Ruben Moya
Remedial Project Manager

Enclosures (2)

Enclosure (1): Arkwood 8-9-2012-Responses to Comments
Enclosure (2): 2012_8_15_Dye Tracer Test_Critical Review_2012

cc: Mark Moix, ADEQ

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL RISK MANAGEMENT RESEARCH LABORATORY
GROUND WATER AND ECOSYSTEMS RESTORATION DIVISION
P.O. Box 1198 Ada,OK 74820

August 15, 2012

OFFICE OF
RESEARCH AND DEVELOPMENT

MEMORANDUM

SUBJECT: Arkwood Superfund Site (12-R06-002)

FROM: Scott G. Huling, Environmental Engineer
Applied Research and Technical Support Branch

TO: Ruben Moya, Remedial Project Manager
Stephen L. Tzhone, Remedial Project Manager
Superfund Division
EPA Region 6, Dallas TX

A technical review was conducted on the documents entitled, "Final Report Groundwater Tracing Investigation, Arkwood Inc. Site, Omaha, AR. Comments and recommendations are included below. If I can be of assistance to you, please call me at (580) 436-8610.

cc: Linda Fiedler (5203P)
Terry Burton, Region 6
Gregory Lyssy, Region 6
Vince Malott, Region 6
Chris Villarreal, Region 6

Technical Review Comments and Recommendations:

General Comments

1. Pgs. 17-19. The conditions of injecting the dye liquid at injection locations 91-01 and 91-02 indicate that the dye was injected along two losing sections of the river. For example, at tracer location 91-01, it was reported that 10 truckloads of 1800 gallons each of fluorescein and Rhodamine WT dye were discharged along the stream channel of Cricket Creek at a rate of 95 gallons per minute (21,600 gallons total). The 91-02 tracer test was performed along the same creek down by the New Cricket Spring where more dye was released. In both cases, the dye infiltrated the ground within a short transport distance.

It was reported that the purpose of the study was designed to identify all springs in topographic basins, other than Cricket Creek and Walnut Creek that receive recharge waters from the site. Further it was reported that the purpose of the test was not to assess movement of water through the "residuum and the subcutaneous zone". It is assumed that this refers to the ground water movement in the near surface where contaminant transport from the site originates. However, this appears to be a flaw in the use of the tracer test as it relates to the issue raised in the previous technical review memorandum (June 27, 2012). Specifically, the technical issue raised in that correspondence was that PCP-contaminated ground water, emanating from the contamination site, is not captured by New Cricket Spring and migrates beyond New Cricket Spring. Based on a preliminary understanding of the waste handling at the site, the majority of the wood preserving waste was historically placed into the on-site sinkhole, i.e., released into the subsurface, and then dissipated with time. It is reasonable to conclude that the release of the dye along the stream channels does not simulate contaminant transport from the site where the majority of the contamination was released/disposed.

It is recommended that a fate and transport investigation be conducted to assess the extent to which contaminated ground water may be leaving the site. This may require additional site characterization activities to fill data gaps. In context with the tracer test that was previously conducted, please clarify whether contaminated ground water from the site discharges to the subsurface along the losing sections of the stream where the dye was injected. Finally, it is recommended that an assessment be performed to determine whether New Cricket Spring captures all the contaminated ground water from the site.

2. Pg. 20. It was reported that "The injection sites bracketed the Arkwood Site thus ensuring that all flow systems from the site would be traced." Based on the results of these tests, dye was detected at 12 locations downgradient/downstream from the dye injection location 91-01, and from 14 locations downgradient/downstream from the dye injection location 91-02. This result indicates that the New Cricket Spring does not capture all ground water emanating from the site.

Specific Comments

1. In a response letter from McKesson (August 9, 2012), it was reported that,

> "Although a portion of the water that flows beneath the Arkwood site may not flow through the New Cricket Spring, no detectable PCP concentrations are measurable at other potential discharge locations."

There is significant uncertainty in the fate and transport of wood preserving wastes associated with this site. As indicated in general comment no. 1 above, it is recommended that additional site characterization and a fate and transport investigation be conducted to assess the extent to which PCP-contaminated ground water may be transported beyond the property boundary of the Arkwood site. Specifically, it is recommended that "other discharge locations" be identified as they relate to the contaminated ground water.

2. In a response letter from McKesson (August 9, 2012), it was reported that,

> "The area is underlain by karst geology which prevents the use of monitor wells as a method of predicting contaminant movement, or recovery wells as a method of remediation."

It is agreed that predicting contaminant fate and transport in the subsurface is challenging. However, it should not be precluded that sites described as karst overlain by unconsolidated materials cannot be characterized using monitoring wells or remediated using recovery wells.